

# Work Order ID 45689

June 26, 2009 11:49:46 AM

Page 1

Item ID: D3016-041 **GY**

Accept

Revision ID: A

Item Name: Seat Frame Assembly

Setup Start

Stop

Start Date: 15/07/2009 Start Qty: 1.00

Required Date: 03/08/2009 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

| Sequence ID/<br>Work Center ID | Operation<br>Description | Set Up/<br>Run Hours | Draw<br>Number | Draw<br>Rev. | Plan<br>Code | Accept<br>Qty | Reject<br>Qty | Reject<br>Number | Insp.<br>Stamp |
|--------------------------------|--------------------------|----------------------|----------------|--------------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|----------------|--------------|--------------|---------------|---------------|------------------|----------------|

Draw Nbr

Revision Nbr

D3016

Rev A

100

0.00



Large Fab

Large Fab

Memo

0.00

Large Fab

1-Cut all tubes as per Dwg D3016 1-2-Deburr 1-3-Assemble and weld as per Dwg D3016 using welding jig DT8597 1-4-4130 Rod  
Batch: 1-4-Transfer drill holes from D3017-041 and D3021-041 in seat frame D3016-041

110

QC9- Inspect visual per QSI004- Fusion Welds

0.00



QC

Memo

0.00

Quality Control

120

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

PD 09.01.01  
S 02/07/09 (+1 Sep)

1000

# WorkOrder ID 45689

June 26, 2009 11:49:46 AM



Item ID: D3016-041  
Revision ID: A  
Item Name: Seat Frame Assembly

Accept



Setup Start



Stop



Start Date: 15/07/2009 Start Qty: 1.00



Required Date: 03/08/2009 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Run Start



Approvals: Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

130



Powdercoat

Powder Coating

Grey Sandtex(Ref:4.3.5.6) per QSI005 4.3

0.00

Memo

0.00

Install paint screws on fitting ends: START TIME:

7:30am OVEN TEMPERATURE: 320°C FINISH TIME: 8:00am

M109091 09-07-06 (Set) JV

140



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

BR 09-07-6

①

150



Packaging

Packaging

Identify as per dwg & Stock Location: store

0.00

Memo

0.00

9/7/6

②

SP

# Work Order ID 45689

June 26, 2009 11:49:46 AM



Page 3

Item ID: D3016-041  
Revision ID: A  
Item Name: Seat Frame Assembly

Accept



Setup Start



Stop



Start Date: 15/07/2009 Start Qty: 1.00



Required Date: 03/08/2009 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Draw  
Number

Draw  
Rev.

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

160

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

U 810707

## 3.

June 26, 2009 11:27:57 AM

Page 1

**Work Order ID:** 45689

**Parent Item:** D3016-041RevA

**Parent Item Name:** Seat Frame Assembly

**Start Date:** 15/07/2009

**Required Date:** 03/08/2009**Comments:**

**Start Qty: 1.00**

**Required Qty: 1.00**

[illegible]

Date: Tuesday, 10/02/2009 3:06:30 PM  
 User: Julie Dawson

## Process Sheet

|  |                                       |
|--|---------------------------------------|
| Customer : CU-DAR001 Dart Helicopters Services | Drawing Name : SEAT FRAME ASSEMBLY    |
| Job Number : 45689                             |                                       |
| Estimate Number : 11122                        |                                       |
| P.O. Number :                                  | Part Number : D3016041                |
| This Issue : 10/02/2009 S.O. No. :             | Drawing Number : D3016 REV A          |
| Prsht Rev. : NC                                | Project Number : N/A                  |
| First Issue : // Type : LARGE FAB ASSY         | Drawing Revision : A                  |
| Previous Run : 44557                           | Material :                            |
| Written By :                                   | Due Date : 03/03/2009 Qty: 1 Um: Each |
| Checked & Approved By : <u>JUD 09.02.10</u>    |                                       |
| Comment : Est. A 01.09.19 New issue EC         |                                       |

## Additional Product

Job Number:



| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|
|---------|-----------------------|---------------|

|     |                 |                          |
|-----|-----------------|--------------------------|
| 1.0 | M4130NT0750W049 | 4130 RD Tube .750 x.049W |
|-----|-----------------|--------------------------|



Comment: Qty.: 4.5150 f(s)/Unit Total : 4.5150 f(s)

4130 Tube .750 OD x.049W

Cut- AISI 4130N tube, Ø3/4" x 0.049" wall

Batch: M11642*\* Scraps- from pulled materials.*EL 9-6-12

24

|     |                 |                              |
|-----|-----------------|------------------------------|
| 2.0 | M4130NT1000W120 | 4130 RD Tube 1.00 x .120wall |
|-----|-----------------|------------------------------|



Comment: Qty.: 1.5750 f(s)/Unit Total : 1.5750 f(s)

4130 Tube 1.0"D X 0.120"W

batch M108538*x 16"*EL9-6-12

24

|     |                 |                          |
|-----|-----------------|--------------------------|
| 3.0 | M4130NT0500W049 | 4130 RD Tube .500 x.049W |
|-----|-----------------|--------------------------|



Comment: Qty.: 4.5150 f(s)/Unit Total : 4.5150 f(s)

4130 Tube .500 OD x.049W

Cut- AISI 4130N tube, Ø1/2" x 0.049" wall

Batch: ~~M108538~~M103433*x 3.79**M106651 x 0.46 (scraps.)*EL9-6-12

24

|     |         |        |
|-----|---------|--------|
| 4.0 | D301617 | Gusset |
|-----|---------|--------|



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Gusset

Pick:

Qty Part Number Description Batch

2 D3016-17 Gusset

B39641EL 9-7-1

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

Date: Tuesday, 10/02/2009 3:06:30 PM  
User: Julie Dawson

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SEAT FRAME ASSEMBLY

Job Number: 45689

Part Number: D3016041

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

D301613

Bracket



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Bracket

Pick:

Qty Part Number Description Batch

2 D3016-13 Bracket B44778

EL 9-7-1 (x2)

6.0

D301615

Gusset



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Gusset

Pick:

Qty Part Number Description Batch

2 D3016-15 Gusset B43413

EL 9-7-1 (x2)

7.0

D30201

Fitting



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Fitting

Pick:

Qty Part Number Description Batch

4 D3020-1 Fitting B36713

EL 9-7-1 (x4)

8.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Cut all tubes as per Dwg D3016

2-Deburr

3-Assemble and weld as per Dwg D3016 using welding jig DT8597

A/R 4130 Rod Batch: M19317

4-Transfer drill holes from D3017-041 and D3021-041 in seat frame D3016-041

EL 9-7-1

9.0

QC9

VISUAL WELDING INSPECTION



Comment: VISUAL WELDING INSPECTION

10 01-07-01

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



Date: Tuesday, 10/02/2009 3:06:30 PM  
User: Julie Dawson

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SEAT FRAME ASSEMBLY

Job Number: 45689

Part Number: D3016041

Job Number:



Seq. #:

Machine Or Operation:

Description :

✓ 10.0

QC5

INSPECT WORK TO CURRENT STEP



✓ Comment: INSPECT WORK TO CURRENT STEP

809107102 (X) set

✓ 11.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Install paint screws on fitting ends

Powder Coat Grey sandtex (Ref. 4.3.5.6) as per QSI 005

START TIME: \_\_\_\_\_

OVEN TEMPERATURE: \_\_\_\_\_

FINISH TIME: \_\_\_\_\_

✓ 12.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



✓ Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

✓ 13.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: \_\_\_\_\_

✓ 14.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion

✓



| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries



|                     |                       |  |                        |
|---------------------|-----------------------|--|------------------------|
| DESIGN<br><i>CP</i> | DRAWN BY<br><i>CP</i> | <b>DART AEROSPACE LTD</b><br>HAWKESBURY, ONTARIO, CANADA |                        |
| CHECKED<br><i>#</i> | APPROVED<br><i>#</i>  | DRAWING NO.<br>D3016                                     | REV. A<br>SHEET 1 OF 3 |
| DATE<br>01.05.18    |                       | TITLE<br>SEAT FRAME ASSEMBLY                             | SCALE<br>NTS           |
| A                   | 01.05.18              | NEW ISSUE  |                        |

| QTY | PART NUMBER | DESCRIPTION         | MATERIAL   |
|-----|-------------|---------------------|--|
| X   | D3016-041   | SEAT FRAME ASSEMBLY | N/A  |
| 1   | D3016-1     | TUBE                | AISI 4130N TUBE, Ø0.75 DIA x 0.049 WALL (M4130N-T0750W049) |
| 2   | D3016-3     | TUBE                | AISI 4130N TUBE, Ø0.75 DIA x 0.049 WALL (M4130N-T0750W049) |
| 1   | D3016-5     | TUBE                | AISI 4130N TUBE, Ø0.50 DIA x 0.049 WALL (M4130N-T0500W049) |
| 2   | D3016-7     | TUBE                | AISI 4130N TUBE, Ø0.50 DIA x 0.049 WALL (M4130N-T0500W049) |
| 1   | D3016-9     | SADDLE              | AISI 4130N TUBE, Ø1.00 DIA x 0.120 WALL (M4130N-T1000W120) |
| 1   | D3016-11    | SADDLE              | AISI 4130N TUBE, Ø1.00 DIA x 0.120 WALL (M4130N-T1000W120) |
| 1   | D3016-13    | BRACKET             | AISI 4130N SHEET, 18 GAUGE (M4130N-S049)                   |
| 1   | D3016-15    | GUSSET              | AISI 4130N SHEET, 18 GAUGE (M4130N-S049)                   |
| 1   | D3016-17    | GUSSET              | AISI 4130N SHEET, 18 GAUGE (M4130N-S049)                   |
| 2   | D3020-1     | FITTING             | N/A  |

#### NOTES

- 1) WELD PER DART QSI 004
- 2) ON SHEET METAL PARTS, BREAK ALL UNMARKED CORNERS 0.020-0.040
- 3) FINISH: POWDER COAT GREY SANDTEX (REF. 4.3.5.6) PER DART QSI 005 4.3
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

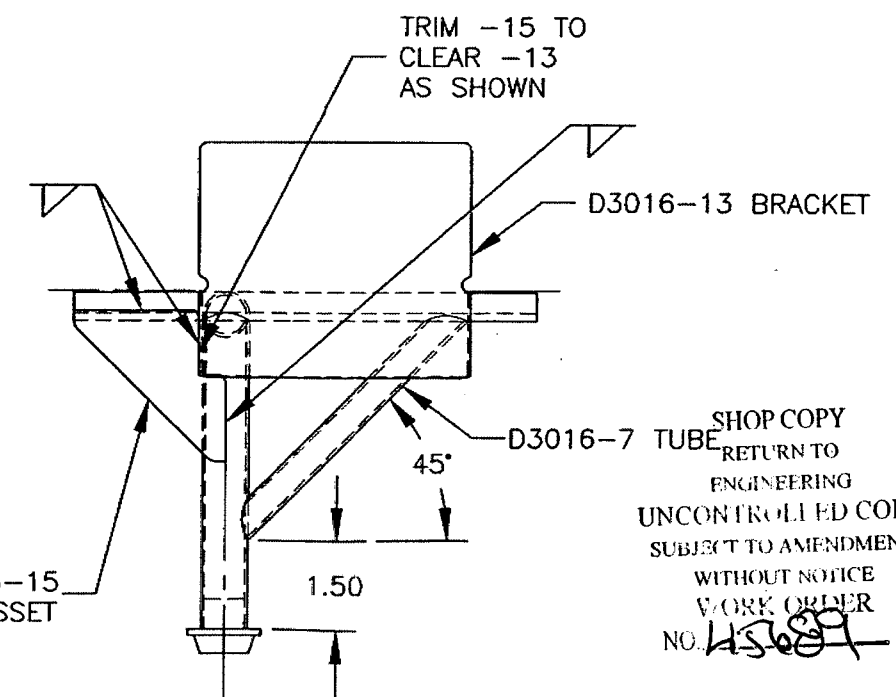
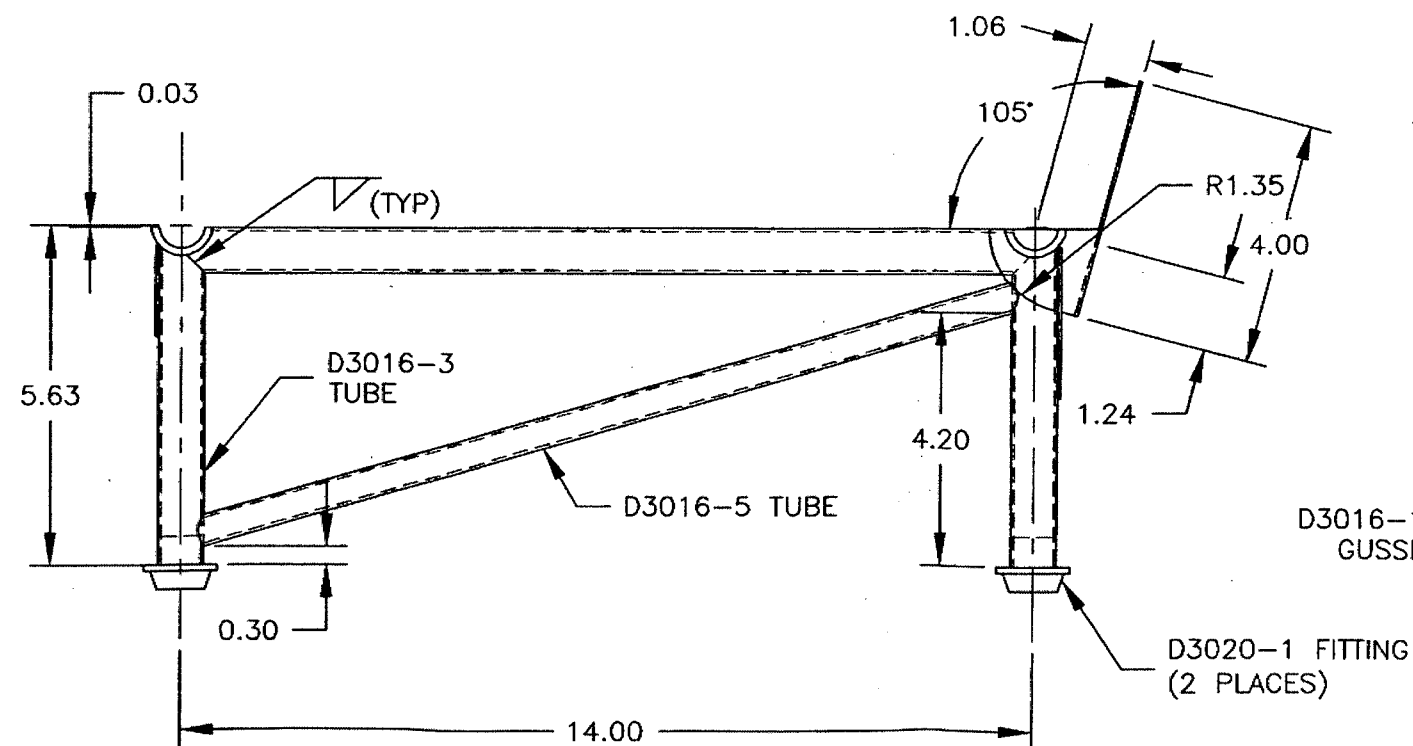
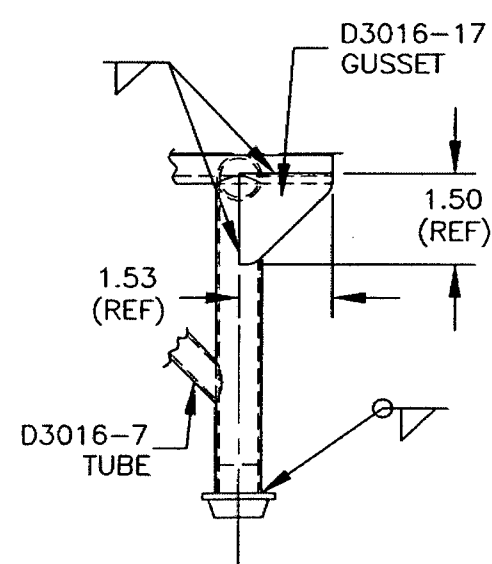
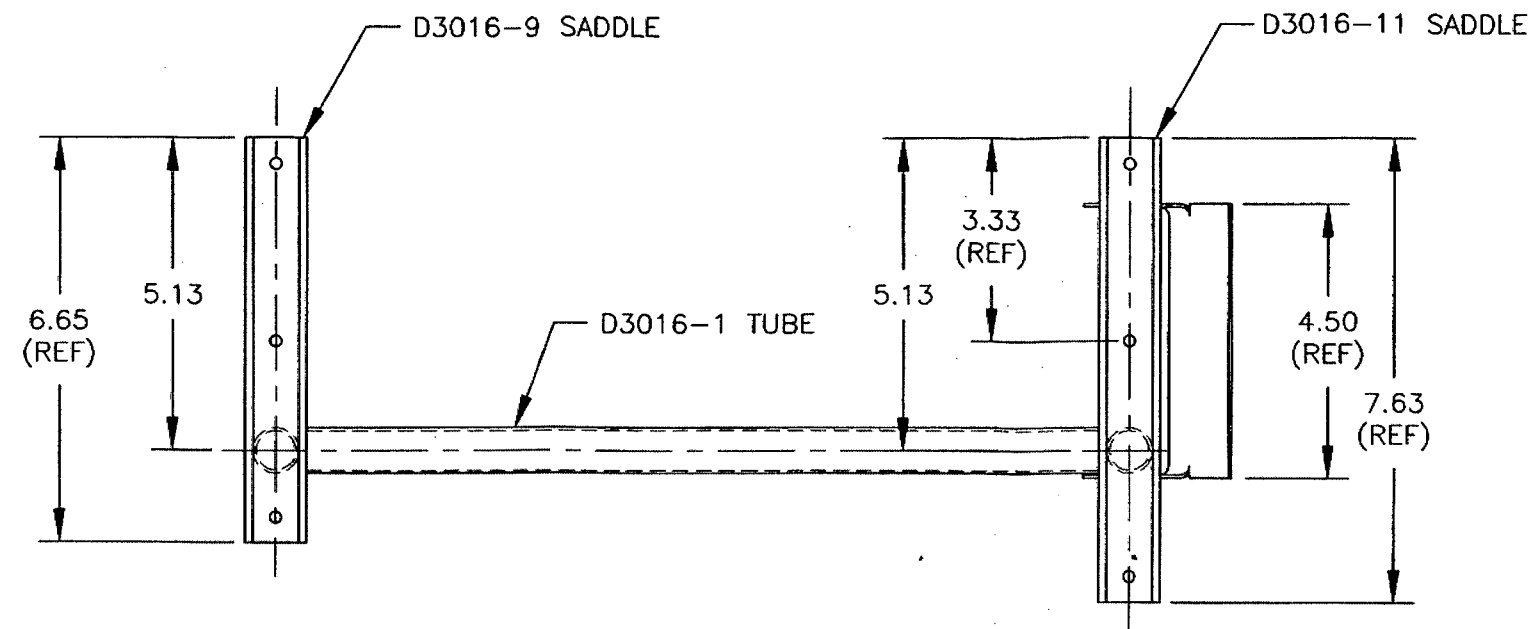
SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. *45689*

**RELEASED**  
01.05.30 *#*

Copyright © 2001 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

# D3016-041 SEAT FRAME ASSEMBLY



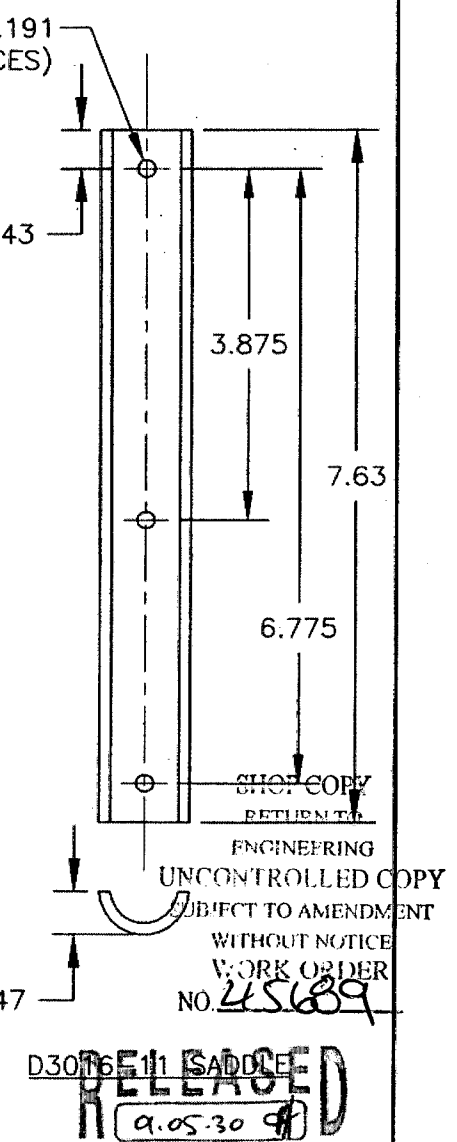
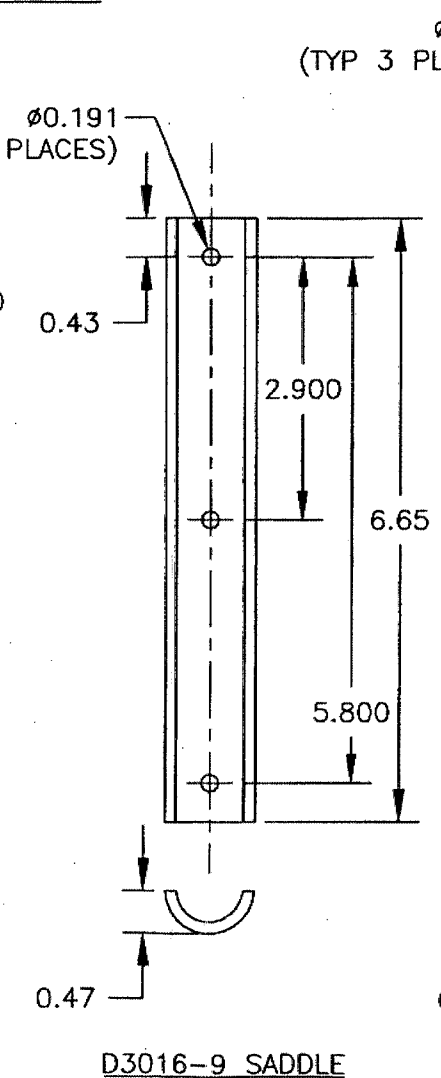
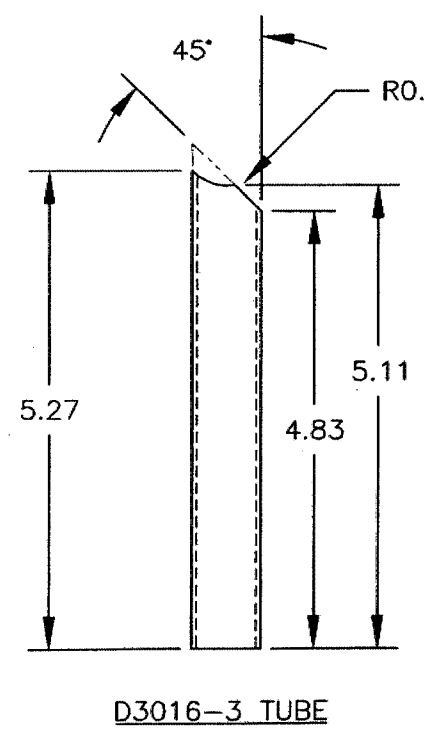
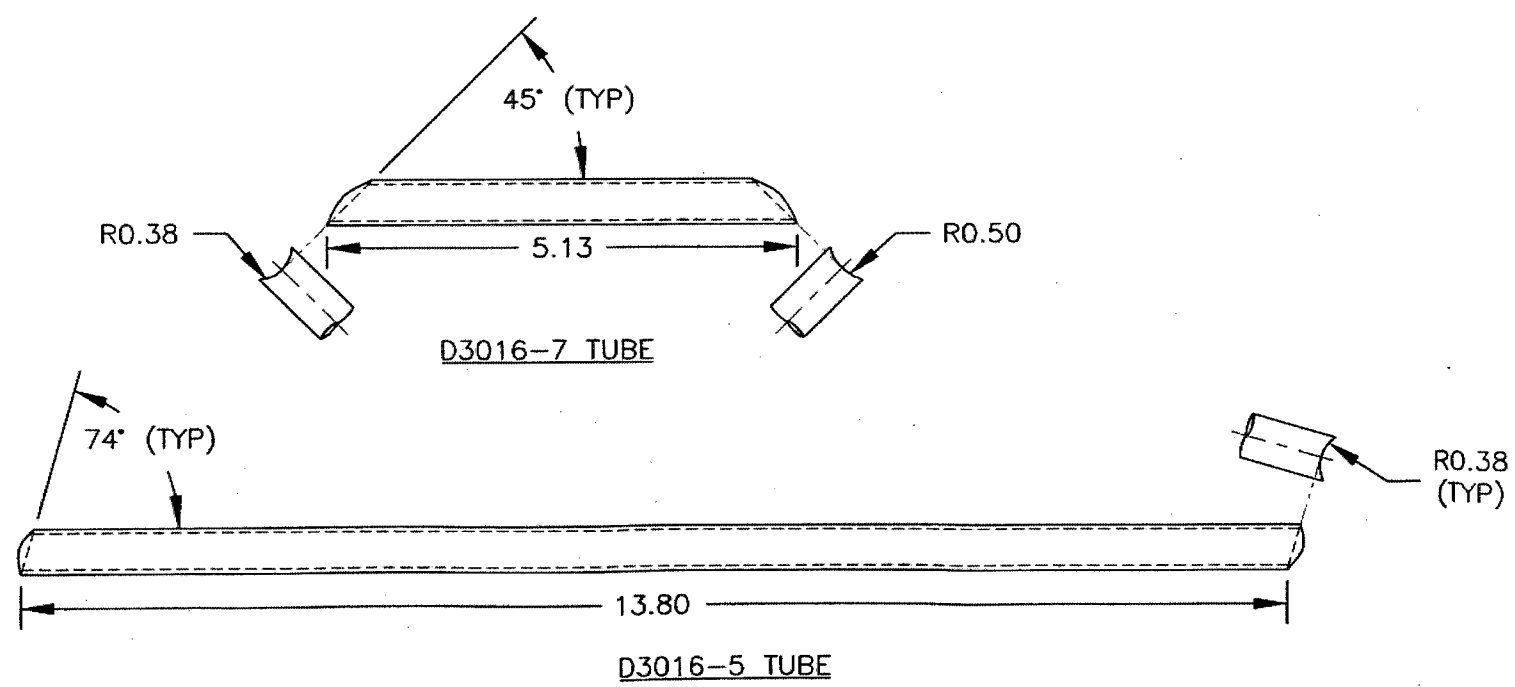
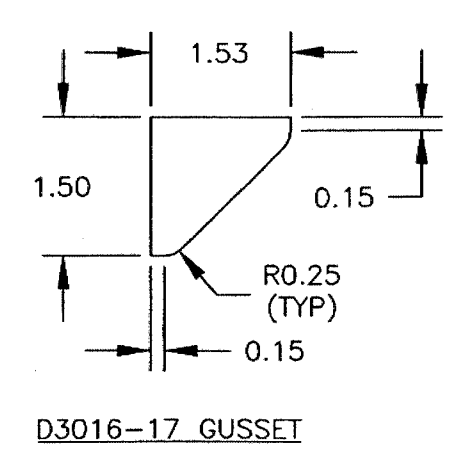
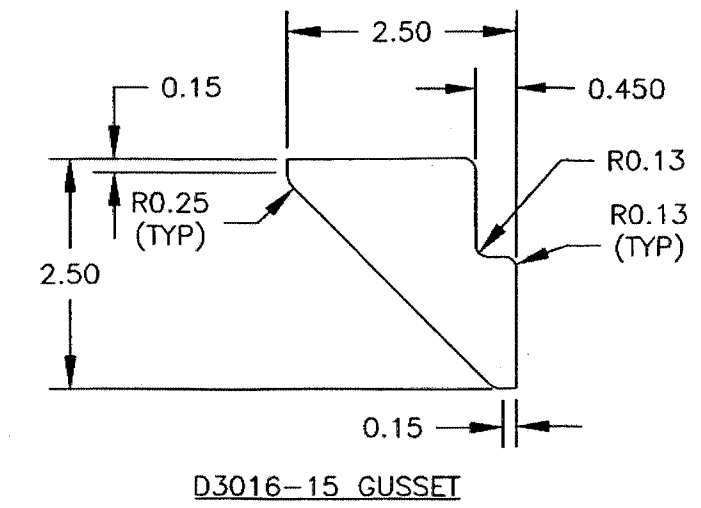
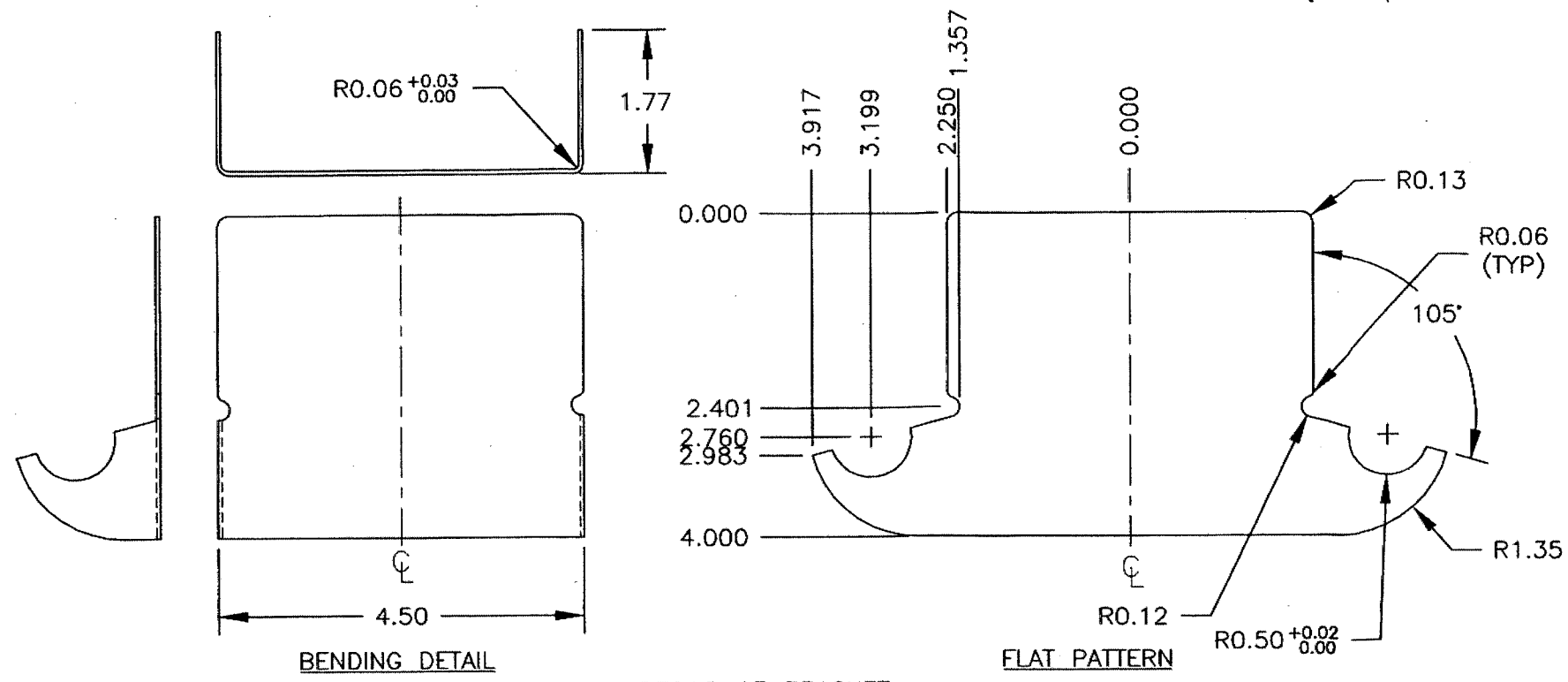
SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 45089

RELEASED  
01.05.30

COPYRIGHT © 2001 BY DART AEROSPACE LTD.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL  
AND IS SUPPLIED ON THE EXPRESS CONDITION  
THAT IT IS NOT TO BE USED FOR ANY PURPOSE  
OR COPIED OR COMMUNICATED TO ANY OTHER  
PERSON WITHOUT WRITTEN PERMISSION FROM  
DART AEROSPACE LTD.

|                  |                              |                      |  |
|------------------|------------------------------|----------------------|--|
| DESIGN<br>CP     | DRAWN BY<br>CP               | <b>DART</b>          | DART AEROSPACE LTD.<br>HAWKESBURY, ONTARIO, CANADA |
| CHECKED<br>#     | APPROVED<br>#                | DRAWING NO.<br>D3016 | REV. A<br>SHEET 2 OF 3                             |
| DATE<br>01.05.18 | TITLE<br>SEAT FRAME ASSEMBLY | SCALE<br>1:3         |  |



|  |  |          |          |                     |  |
|--|--|----------|----------|---------------------|--|
| COPYRIGHT © 2001 BY DART AEROSPACE LTD.  |  | DESIGN   | DRAWN BY | <b>DART</b>         | DART AEROSPACE LTD.<br>HAWKESBURY, ONTARIO, CANADA |
| THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. |  | CHECKED  | APPROVED |                     |  |
| DATE   |  | 01.05.18 |          | DRAWING NO.         | REV. A   |
|  |  |          |          | D3016               | SHEET 3 OF 3                                       |
|  |  |          |          | TITLE               | SCALE  |
|  |  |          |          | SEAT FRAME ASSEMBLY | 1:2  |